Comparative effectiveness of residential versus outpatient treatment for pregnant substance abusers
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OBJECTIVE
The objective of this study was to compare effectiveness of outpatient versus residential substance abuse treatment for pregnant women with chemical dependency.

METHODS
Retrospective longitudinal observational study using national datasets.

Data
Treatment Episode Data Set – Discharges (TEDS-D)
- Linked admission and discharge information from nearly all 13,000 publicly funded U.S. substance abuse treatment programs
- Discharges 2006 through 2008 from 41 states

Primary outcome measure: reason for discharge (optimal versus sub-optimal)
- Optimal discharge
  - Treatment completion
  - Transfer to another treatment program
- Sub-optimal discharge
  - Treatment termination by client against professional advice
  - Termination by treatment program
  - Removal from program by law enforcement authorities
  - Death

Predictors
- Client demographics and clinical measures
- Treatment episode characteristics
- Geographical indicators (Core Based Statistical Area or rural area within each state)

National Survey of Substance Abuse Treatment Services (N-SSATS)
- Administrative data from the overwhelming majority of publicly funded U.S. substance abuse treatment agencies

Key variables (by geographic area)
- Residential service availability
- Special services for women and/or for pregnant women

Sample
Pregnant female discharges from outpatient (regular or intensive) or residential (short- or long-term) treatment at publicly funded facilities 2006 through 2008 (n = 237 geographic areas with at least one pregnant discharge)

Analyses
- Descriptive statistics and Chi-squared tests
- Multi-level models addressing dependence among treatment agencies

- Two-stage residual inclusion approach (due to endogeneity)
  - Two-step method based on instrumental variable
  - Logistic models (non-linear)
  - First stage = residential versus outpatient treatment (from TEDS-D) predicted with geographic area agency data (from N-SSATS)
  - Residual = observed treatment – predicted probability of residential treatment
  - Second stage = multi-level logistic model of discharge including residual

RESULTS
Table 1 shows there were substantial differences in demographics, clinical characteristics, and chances of optimal discharge among pregnant women in residential versus outpatient programs. Bi-variate analyses suggested residential treatment favored optimal discharge.

Facility information (i.e., fraction of clients receiving residential care) from N-SSATS was a powerful predictor of residential versus outpatient treatment in TEDS-D (e.g., F (1,207) = 18.6 for 2007).

Table 2 shows that differences in optimal discharge (favoring residential care) persisted after adjustment for individual characteristics and lack of independence among facilities in multi-level models. However, when endogeneity was addressed in multi-level residual inclusion models these outcome differences were no longer statistically significant.

CONCLUSIONS
In two-stage multi-level models addressing both endogeneity and dependency among agencies, it appears that residential treatment offers no differential improvement in chances of optimal discharge for pregnant women with substance abuse problems.

Policy makers and funders may wish to consider creation of outpatient programs tailored for the needs of this group.

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